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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,957	07/24/2003	Sumit Talwalkar	MOTB:033US	1631
<div>7590 11/06/2007 David D. Bahler, Esq. FULBRIGHT &amp; JAWORSKI, L.L.P. Suite 2400 600 Congress Avenue Austin, TX 78701</div>			<div>EXAMINER TSE, YOUNG TOI</div>	
			<div>ART UNIT 2611</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 11/06/2007</div>	<div>DELIVERY MODE PAPER</div>

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/625,957

Applicant(s)

TALWALKAR ET AL.

Examiner

YOUNG T. TSE

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-22 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 23-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The indicated allowability of claims 12-13, 15 and 29 is withdrawn in view of the newly discovered reference(s) to Warner et al. Therefore, the finality of the rejection of the last Office action mailed on August 1, 2007 is withdrawn. Rejections based on the newly cited reference(s) follow.

### ***Claim Objections***

2. Claims 16-21 and 30 are objected to because of the following informalities:  
  
In claim 16, line 3-4 and 6, "a first and second" should be "first and second".  
  
In claim 17, line 9, "a second first" should be "a second".  
  
Wherein the dependent claims 18-21 and 30 depend upon the independent claim  
16.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

Art Unit: 2611

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 12-22 and 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Warner et al. (U.S. Patent No. 6,940,916, hereinafter "Warner").

Warner discloses a quadrature transceiver in Figure 1 comprising a transmitter section (102, 104), a receiver section (108, 110, 112), and an adaptive control processing and compensation estimator (118). See col. 6, line 4 to col. 8, line 47.

Figure 6 or 18 shows the detailed embodiment of the quadrature modulator compensation signal processor (102) quadrature transceiver in Figure 1. See col. 12, line 65 to col. 13, line 61.

Figure 10 or 19 shows the detailed embodiment of the quadrature demodulator compensation signal processor (112) of the quadrature transceiver in Figure 1. See col. 16, line 56 to col. 17, line 33.

Regarding claims 12, 13 and 29, the receiver section performing a first search to determine a pair of receiver path correction signals (outputs of the I-DC and Q-DC offsets of Figure 10); the transmitter section performing a second search to determine a pair of transmitter path correction signals (630 and 638 of Figure 6); the adaptive control processing and compensation estimator using the pairs of receiver path and transmitter path correction signals to suppress carrier feedthrough in the quadrature transceiver.

In additional of claim 1 and regarding claim 17, the adder (1026 of Figure 10) subtracting a first receiver path correction signal (1010 of Figure 10) from a first downconverter output signal (160 of Figure 10); the adder (1028 of Figure 10) subtracting a second receiver path correction signal (1022 of Figure 10) from a second

Art Unit: 2611

downconverter output signal (162 of Figure 10); the adder (632 of Figure 6) subtracting a first transmitter path correction signal (630 of Figure 6) from a first quadrature modulator signal (626 and/or 628 of Figure 6) being input into an upconverter (104 of Figure 1); and the adder (640 of Figure 6) subtracting a second transmitter path correction signal (638 of Figure 6) from a second quadrature modulator signal (634 and/or 636 of Figure 6) being input into the upconverter.

In additional of claim 3, where performing at least one of the first and second searches includes performing an algorithm selected from the group consisting of at least one or more of phase rotation. See col. 12, line 65 to col. 13, line 6 and col. 16, lines 56-66.

In additional of claim 29 and regarding claim 30, wherein the first and second searches use a same algorithm performed by the adaptive control processing and compensation estimator.

Regarding claim 16, the receiver section performing, during a first mode of operation, a first calibration to determine a first and second pair-of receiver path correction signals; the transmitter section performing, during a second mode of operation following the first mode of operation, a second calibration to determine a first and second transmitter path correction signals using the receiver path of the quadrature transceiver; and the adaptive control processing and compensation estimator using, during a third mode of operation following the second mode of operation, the pairs of the receiver path and transmitter path correction signals to suppress carrier feedthrough in the quadrature transceiver.

Regarding claim 22, the quadrature transceiver comprising: a first pair of summers (632 and 640); a quadrature modulator (not shown) which generates a baseband in-phase and quadrature phase signals (122 and 124) (col. 6, lines 20-29) and an upconverter circuit (104) coupled to the first pair of summers, each of the first pair of summers being operable to add one of the outputs of the quadrature modulator to one of a pair of transmitter path correction signals; a multiplexer (108) coupled to the upconverter circuit, to a ground (146), and to an RF front end (not shown) (col. 7, lines 7-15); a downconverter circuit (110) coupled to the multiplexer; a second pair of summers (1026 and 1028) coupled to the downconverter circuit, each of the second pair of summers being operable to add one of the outputs of the downconverter modulator to one of a pair of receiver path correction signals; and a correction circuit (118) coupled to the first and second pairs of summers, the correction circuit performing a first correction method to determine the pair of receiver path correction signals, and performing a second correction method to determine the pair of transmitter path correction signals, and using the pairs of receiver path and transmitter path correction signals to suppress carrier feedthrough in the quadrature transceiver.

Regarding claims 14 and 20, the quadrature transceiver operates in full-duplex mode.

Regarding claim 15 and 21, Warner discloses an alternative quadrature transceiver in Figure 15 which comprises a microprocessor or a digital signal processor (1506) comprising programmable storage device(s) (Flash, ROM, RAM), which is well known to a person skill in the art, such as readable by a machine and tangibly

Art Unit: 2611

employing a representation of a program of instructions adapted to be executed by the machine to perform the method of either claim 12 or 16.

Regarding claim 18, wherein performing at least one of the first and second calibrations includes performing a feedback DC calibration (col. 17, lines 10-25).

Regarding claim 19, wherein performing at least one of the first and second calibrations includes performing a binary search since the adaptive control processing and compensation estimator operates in digital manner.

Regarding claims 26 and 27, the alternative quadrature transceiver shown in Figure 15 comprises a control circuit (1506) comprising a program storage device (Flash, ROM, RAM) to generate a control signal to control the switch (108). See col. 24, lines 13-18.

Regarding claim 28, it is well known to a person skill in the art that the quadrature transceiver can be integrated in an integrate circuit, such as an integrator chip in order to make it smaller for storage and save money.

***Allowable Subject Matter***

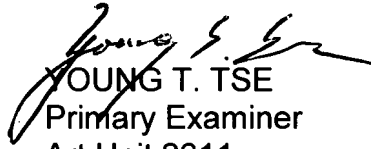
5. Claims 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2611

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
YOUNG T. TSE  
Primary Examiner  
Art Unit 2611